kidneys; at this stage he began to vomit and went into collapse and broke out into a cold and clammy sweat, remaining this way for two hours.

He continued to swell for 12 hours, when it stopped, and it was 48 hours before the swelling began to leave and six weeks after the bite the patient still complains of soreness in his legs and some pain around his heart, yet he is able to resume his work on the farm.

Also, since writing the above, an article has appeared in the *Journal* of the American Medical Association for January 8, 1921, page 99, by Dr. D. J. Lewis of San Juan, Coahuila, Mexico, entitled "Black Spider Poisoning; a Report of Four Cases." In this article he briefly describes the cases of three men, aged respectively 31, 32, and 33 years, and of one woman, aged 28, all of whom were bitten while asleep in bed at night. Dr. Lewis states that gauze wet with saturated solution of magnesium sulphate kept on the bitten area "relieves the pain, reduces the swelling and prevents the progress of the disease." He also gave iodine, calomel and magnesium sulphate internally, but he does not state in what doses. The patients were able to resume work in from five to ten days.

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SPECIAL ARTICLES

PREVALENCE AND DISTRIBUTION OF FUNGI INTERNAL OF SEED CORN

THE importance of root, stalk and ear rot fungi in decreasing yields of field corn has received considerable attention in recent years on the part of investigators. Results of investigations so far reported indicate more or less agreement in the various disease symptoms manifested. However, some difference of opinion exists concerning the importance of the causal organisms. The specific determination of the fungi has not been fully emphasized nor the method by which they are carried in the seed.

The following account presents in part the results of our investigations in determining the species of fungi associated with seed corn. Our studies were initiated to ascertain the losses and prevalence of infection in Delaware and the importance of the seed in carrying infection. While our observations and studies have been confined principally to the corn crop in this state we feel that careful investigations will reveal the presence and importance of the same pathogenes in other states but no doubt in varying degrees of prevalence.

Disinfection experiments followed by cultures soon indicated to us that certain parasitic fungi were carrying internal of the kernel and that a brief surface sterilizing with a strong disinfectant, followed by proper culture methods proved an efficient means of determining the amount of such internal infection.

We have found that an efficient test for determining the presence of fungi internal of seed corn and one which at the same time readily permits of the identification of the fungi, is carried out by disinfecting and planting the kernels or crushed kernels in sterile culture medium in Petri dishes. Fifteen or more kernels are disinfected in a test tube 150 × 20 mm. for one minute in a solution of 50 per cent. alcohol containing 1 gram of bichloride of mercury in each liter. Following this treatment the kernels are washed in the same tube with two successive washings with 20 c.c., each of sterile water and immediately ten kernels are removed aseptically with sterile forceps and placed with germ side down on 20 c.c., of nutrient glucose agar in a sterile culture dish. Further, five of the remaining kernels are each placed in a sterile culture dish and with a sterile scalpel the point of the kernel which is the portion that contains most of the internal infection is cut off one sixth to one fifth inch from the end; then with a strong sterile forceps each point is placed in the mouth of a heavy-walled tube (it requires a strong tube and strong forceps, as crushing is not easy) 150 × 20 mm. containing 10 c.c., of sterile nutrient glucose agar medium at 43° C.; the point is thoroughly crushed and shaken down into the medium, then well

mixed and poured into the sterile culture dish containing the remaining part of the kernel. (These methods were used extensively by the senior writer in his studies on fungi internal of flax, 1901–1904, and wheat, 1909.) In this manner a greater distribution of the mycelium or spores is possible and allows for accurate interpretation in instances where more than one fungus is being carried.

In most of the cultural plate work a dextrose peptone agar of the following composition was used:—tap water 1000 c.c., dextrose 10 grams, peptone 1 gram, agar 15 grams. Twenty cubic centimeters of medium were used in all cultural plates in which ten kernels of corn were placed for germination.

A careful study of the anatomy of seed which showed heavy infection after a sterilizing treatment, readily indicated how these parasitic fungi were escaping the disinfectant. In most cases where the internal pathogenes were not inhibiting germination, the fungi had gained entrance only to the cavity under the "cap"; or had penetrated but short distances under the pericarp. This was true of each of the fungi *Cephalosporium sacchari, Gibberella saubinetii, Fusarium moniliforme* and *Diplodia zeæ*. Whenever any of these pathogenes became established in the tissue comprizing the embryo the vitality was either destroyed or greatly inhibited. Observations thus far made indicate as a result of cultural and germinator tests that in order of importance of inhibiting germination *Diplodia zeæ* stands first, followed in order by *Gibberella saubinetii, Fusarium moniliforme* and *Cephalosporium sacchari.*

The samples submitted for this survey from states other than Delaware were not necessarily representative. The studies show at least the general occurrence of these fungi.

The establishment of *C. sacchari* as a para-

DISTRIBUTION AND PREVALENCE OF PARASITIC FUNGI INTERNAL OF SEED CORN

State	Number of Samples	Number of Kernels Cultured	*Cephalosporium sacchari*[1]	*Gibberella saubinetii*[1]	*Fusarium moniliforme*[1]	*Diplodia zeae*[1]	Germination[1]		
							Strong	Weak	Dead
Del.	219	3,285	39.54	5.95	19.92	5.69	86.35	9.56	4.09
Ark.	15	225	22.00	1.33	35.33	3.33	66.00	26.66	7.34
Conn.	12	180	16.66	25.83	41.66		84.16	14.16	1.68
Ill.	25	375	2.00		12.40	7.20	82.80	16.00	1.20
Ind.	17	255	4.70	4.70			96.44	3.56	
Ky.	34	510	3.82	4.11	17.94	4.85	59.70	15.59	24.71
Kan.	12	180	11.66		30.00		88.33	11.67	
La.	1	15			80.00		100.00		
Mass.	5	75		12.00	10.00	8.00	85.00	6.00	9.00
Md.	10	150	46.00	7.00	12.00	14.00	65.00	35.00	
Minn.	10	150	10.00	12.00	43.00		37.00	55.00	8.00
Miss.	16	240	38.13		40.00	3.12	74.37	25.00	.63
Neb.	14	215	22.85		20.00	1.42	85.71	4.28	10.01
N. C.	10	150	38.00	2.00	48.00		86.00	14.00	
N. Dak.	25	375			.40	.80	85.60	1.20	13.20
N. J.	10	150	24.00	21.00	17.00	2.00	79.00	21.00	
N. Y.	6	90		3.33			96.67	3.33	
Ohio	11	165	10.90	22.72	1.82	12.73	49.09	50.91	
Pa.	14	210	5.71	7.87			89.57	3.57	6.86
Tex.	7	105	14.28		71.42	2.85	21.42	78.58	
Wis.	7	105	20.00	2.85		10.85	97.14		2.86

[1] All data reported in terms of per cent.

site of corn is here reported for the first time to our knowledge in this country. This fungus was first described by Butler and Kahn (1913) as a parasite of sugar cane in India. A detailed report on these studies will appear in the February issue of the Journal of Agricultural Research.

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May 10, 1921

GENERAL MEETING OF THE AMERICAN CHEMICAL SOCIETY

THE sixty-second general meeting of the American Chemical Society was called to order at Columbia University, New York City, on Wednesday morning, September 7, 1921, with President Edgar F. Smith presiding. The welcoming address was delivered by Dr. John E. Teeple, chairman of the New York Section, to which Dr. Smith responded in behalf of the Society.

The address of Hon. Francis P. Garvan on "Chemistry and the State" roused the audience to a high pitch of feeling regarding the present critical situation which chemistry in America is facing. The address of Sir William J. Pope on "Chemical Warfare" and of Professor R. F. Ruttan on "Organization of Industrial Research in Canada" were also received with enthusiasm. The addresses in full will appear in the October issue of the *Journal of Industrial and Engineering Chemistry*.

Dr. Smith read the following telegram of greeting from President Harding, which had been originally received as the visiting guests crossed the border into the United States at Niagara Falls on Monday, September 5, 1921:

It is a pleasure to extend greetings to the gathering of American, Canadian and British Societies representing the chemical sciences and industries meeting on American soil. Probably none of the materialistic sciences holds promise of so great contributions to human welfare in the coming generations as that which your organization represents. The developments of applied chemistry involve both a possibility of vastly increased horrors in human conflict and alternately inestimable benefits to a peaceful civilization. Let us hope that a science so fraught with either good or vicious possibilities may be turned, through the wisdom of the nations, to the benefit and advancement of mankind.

WARREN G. HARDING

The telegram was received with enthusiasm and the Society requested President Smith to express its appreciation in a suitable reply.

In accordance with the nominations of the council, Sir William Pope and M. Paul Kestner were elected honorary members of the society. Sir William responded in a delightful vein and expressed the extreme regret of M. Kestner at his inability to attend these meetings. Dr. Robert F. Ruttan, president-elect of the Society of Chemical Industry, and Dr. Ernst Cohen of the University of Utrecht were presented to the audience and heartily received.

The Committee appointed by the Council consisting of Messrs. H. T. Clarke, F. R. Eldred, and Chas. H. Herty submitted the following resolution, which was unanimously adopted:

Believing in the incalculable peace-time benefits which accrue from the development of the science of organic chemistry and its application in medicine, agriculture and the industries connected with foods, fuels, textiles and dyes.

Realizing the great rôle that organic chemistry has played in the development of chemical warfare, we call the attention of this nation to the grave crisis which threatens our organic chemical industry.

In spite of the tremendous strides made during the past five years in the United States, this important industry is still centered in Germany. Other nations have already sought to safeguard its future in their countries by appropriate legislation. America stands hesitant. Progress has been checked and indeed the very industry is threatened with destruction. Two agencies will be determinative in averting this disaster, the approaching International Conference on Disarmament and the Congress of the United States.

Resolved, therefore,

First, that we urge upon the American delegates to the Disarmament Conference most serious consideration of the broad question of chemical disarmament as affected by the development and maintenance of the chemical industries in the several nations.

Second, that we urge upon Congress the necessity of including in the permanent tariff bill a selective embargo for a limited period against importation of synthetic organic chemicals, and we express the confident hope that in view of the important bearing of such action on economical development and on national defense, our representatives regardless of political affiliations will support this legislation.

The fiftieth anniversary of Sir James and Lady Dewar's marriage having been recently celebrated, on August 8, it was moved that a congratulatory message be transmitted from the American Chemical Society.

On Tuesday evening a complimentary smoker, with nearly one thousand members present, was held at the Waldorf-Astoria, and an interesting program